ionizing the vapors with electron emission from a hot cathode;

forming the ionized vapors into beam with electrodes of and ion-optical system;

separating and focusing the ionic beam according to isotopes with a magnetic field,; and

entrapping the isotopes in receiving boxes,

wherein the working substance is metallic palladium and temperatures of the heating are 1580-1700°C.

Cont'd D1

2. (amended) A method using ion beams of a material in a magnetic field for separating isotopes of at least a constituent of the material, characterized in that the material is metallic palladium.

3. (amended) The method according to claim 2, wherein the metallic palladium material in the vapor is obtained by heating metallic palladium to 1580-1700 degrees Centigrade.

D2

5. (amended) In a method using ion beams of a material in a magnetic field for separating isotopes of at least a constituent of the material, the improvement wherein the material consists essentially of metallic palladium.

6. (amended) The method according to claim 5, wherein the metallic palladium material in the vapor is obtained by heating metallic palladium to 1580-1700 degrees Centigrade.